



SELF-HELP PROBLEM SOLVING and MAINTENANCE for PETROL LAWNMOWERS

The Briggs & Stratton Quantum engine is fitted to many mowers including the following recent products:

- | | | |
|---------------|----------------|-------------|
| • 460 PD/ES | • 510 PD | • 510 PD/ES |
| • 460 R PD/ES | • M40 HP | • M40 PD |
| • M60 PD | • M60 PD/ES | • 480R |
| • 480 R/ES | • 550R | • 550 R/ES |
| • SP470ES | • SP550 Tricut | |

1. Safety Precautions	2
2. Fuel, Oil, Air Filter and Spark Plug Requirements.	6
3. Routine Engine Maintenance	7
4. Starting the Engine	11
5. Engine Starts and Smokes Heavily	16
6. Engine Cutting Out or Running Unevenly	18
7. Pull Cord Not Pulling or Snatching Back	20
8. Cutting and Collecting Grass, Vibration	22
9. Loss of Drive on Self-Propelled Mowers	26
10. Transportation and Handling	30
11. Maintenance and Storage	31
12. Guarantee, Spare Parts, Repairs	32

If, after reading this guide, you feel you are either unsure of what is required, or that you do not have the correct tools to undertake a job yourself, please contact:

- Our Helpline service, telephone 0845 600 2912 (Monday to Saturday 9am – 5pm, and Sunday 10am – 4pm), or
- Our local ServiceLink centre who can undertake any remedial work requested (work that is not covered by the guarantee will be chargeable)



Your local ServiceLink centre can be found at
www.servicelink.org.uk



1 Safety Precautions

Your lawnmower should be used with due care and attention. Symbols have therefore been placed on various parts of the machine to remind you of the main precautions to be taken. Their meaning is explained below. You are also asked to read the safety precautions listed below.



1. **Warning:** Read the instruction manual before using the machine.



2. **Beware of thrown objects:** Keep other people at a safe distance whilst working.



3. **Warning:** Disconnect the spark plug cap before carrying out any repairs or maintenance.



4. **Beware of cutting:** Moving blades. Do not put hands or feet near the blades.

The following safety precautions must be observed at all times. Please read them very carefully.

TRAINING:

1. **Read the instructions carefully.** Get familiar with the controls and proper use of the equipment. Learn how to stop the engine quickly.
2. **Only use the lawnmower for the purpose for which it was designed, i.e. for cutting and collecting grass.** Any other use can be hazardous, causing damage to the machine. Examples of improper use may include, but are not limited to:
 - Transport of people, children or animals on the machine;
 - Being transported by the machine;
 - Using the machine to tow or push loads;
 - Using the machine for leaf or debris collection;
 - Using the machine to trim hedges, or for cutting vegetation other than grass;
 - Use of the machine by more than one person;
 - Using the blade on surfaces other than grass.
3. Never allow children or people unfamiliar with these instructions to use the lawnmower. Local regulations may restrict the age of the operator.
4. **Never use the lawnmower:**
 - When people, especially children, or pets are nearby;
 - If the operator has taken medicine or substances that can affect his ability to react and concentrate.
5. Remember that the operator or user is responsible for accidents or hazards occurring to other people or their property.
6. Never put your hands, feet or any implement under the cutter deck or inside the rear discharge chute. The cutter blade will continue to rotate for some time after the engine is switched off.

**Engine Model: Briggs & Stratton
Quantum**



PREPARATION:

1. **While mowing, always wear sturdy footwear and long trousers. Do not operate the equipment when bare foot or wearing open sandals. Avoid loose clothing that may snag on moving parts.**
2. Thoroughly inspect the area where the equipment is to be used and remove all objects which may be thrown by the machine or damage the cutter assembly and the engine (stones, sticks, metal wire, bones, etc).
3. **WARNING: DANGER! Engine fuel is highly inflammable:**
 - Store fuel in containers specifically designed for this purpose;
 - **Refuel using a funnel and outdoors only – do not smoke while refuelling or whenever handling the fuel;**
 - Add fuel before starting the engine – never remove the cap of the fuel tank or add fuel while the engine is running or when the engine is hot;
 - If fuel is spilled, do not attempt to start the engine but move the machine away from the area of the spillage and avoid creating any source of ignition until the fuel has evaporated and the vapour has dispersed;
 - Replace all fuel tanks' and retainers' caps securely.
4. Substitute faulty silencers. Never use the machine without a silencer.
5. **Before use, always inspect the machine, especially the condition of the blades, and check that the screws and cutting assembly are not worn or damaged.** Replace worn or damaged blades and screws in sets to preserve balance.
6. Before mowing, attach the discharge opening guards (grass-catcher or stone-guard).

OPERATION:

1. Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
2. Mow only in daylight or good artificial light.
3. If possible avoid operating the equipment on wet grass.
4. Always be sure of your footing on slopes.
5. Walk, never run and do not allow yourself to be pulled along by the lawnmower.
6. Mow across the face of slopes, never up and down.
7. Exercise extreme caution when changing direction on slopes.
8. Do not mow on slopes of more than 20 degrees.
9. Exercise extreme caution when pulling the lawnmower towards you.
10. Stop the blade if the lawnmower has to be tilted for transportation when crossing surfaces other than grass, and when transporting the lawnmower to and from the area to be mown.
11. Never operate the lawnmower with defective guards, or without safety devices, such as the stone-guard and/or grass-catcher, in place.
12. Do not change the engine governor settings or over-rev the engine.
13. On power-driven models, disengage the drive clutch before starting the engine.
14. Start the engine carefully, following the instructions and keeping feet well away from the blade.
15. Do not tilt the lawnmower when starting the engine. Start the engine on a flat surface that is free of obstacles and tall grass.
16. **Do not put your hands or feet near or under rotating parts.** Keep clear of the

Engine Model: Briggs & Stratton Quantum



discharge opening at all times.

17. Never pick up or carry a lawnmower while the engine is running.
18. Stop the engine and disconnect the sparkplug wire:
 - Before carrying out any work underneath the cutting deck or before unclogging the chute;
 - Before checking, cleaning or working on the lawnmower;
 - After striking a foreign object – inspect the lawnmower for damage and make repairs before restarting and operating the lawnmower;
 - If the lawnmower begins to abnormally vibrate (immediately look for the cause of the vibrations and take for necessary controls to a specialist centre).
19. Stop the engine:
 - Whenever you leave the lawnmower unattended – remove the key from models with electric starters;
 - Before refuelling;
 - Every time you remove or replace the grass-catcher;
 - Before adjusting the grass cutting height.
20. Reduce the throttle before turning off the engine and (if fitted) turn the fuel off when you have finished mowing following the instructions in the engine handbook.
21. When mowing, always keep a safe distance from the rotating blade. The distance is the length of the handle.

MAINTENANCE AND STORAGE:

1. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition. Regular maintenance is essential for safety and performance.
2. Never store the equipment with fuel in the tank inside a building where vapour may reach a flame or a spark or a source of extreme heat.
3. Allow the engine to cool before storing in an enclosed space.
4. **To reduce the fire hazard, keep the engine, exhaust silencer, battery compartment and fuel storage area free of grass, leaves, or excessive grease.** Do not leave containers with grass cuttings in rooms.
5. Check the stone-guard and the grass-catcher frequently for wear and deterioration.
6. If the fuel tank has to be drained, this should be done outdoors and when the engine is cool.
7. Wear strong work gloves when removing and reassembling the blade.
8. **Keep the blade balanced during sharpening.** All operations on the blade (dismantling, sharpening, remounting balancing, and/or replacing) require a certain familiarity and special tools. For safety reasons, these jobs are best carried out at a specialized centred.
9. **For safety reasons, never use the machine when it has worn or damaged parts. Parts are to be replaced and not repaired. Use genuine spare parts. Parts that are not of the same quality can damage the equipment and impair your safety.**

TRANSPORTATION AND HANDLING:

1. Whenever the machine is to be handled, raised, transported or tilted you must:
 - Wear strong working gloves;

**Engine Model: Briggs & Stratton
Quantum**



-
- Grasp the machine at the points that offer a safe grip, taking account of the weight and its distribution;
 - Use an appropriate number of people for the weight of the machine and the characteristics of the vehicle or the place where it has to be placed or collected.
2. During transport, fasten the machine securely with ropes or chains.



2 Fuel, Oil, Air Filter and Spark Plug Requirements

FUEL – this is a 4-stroke petrol engine. The correct fuel is ordinary unleaded petrol.

Do not overfill the fuel tank. Fill the fuel tank to approximately 1 – 1¹/₂" below the top of the fuel filler neck to allow for fuel expansion.

OIL – the correct oil to use is Mountfield MX855 oil, or a 4-stroke SAE 30 or 10W-30 multi-viscosity oil. DO NOT mix oil with the fuel. The dipstick shows the minimum and maximum levels. The engine holds 0.6 litre of oil.

The use of multi-viscosity oils in hot temperatures will result in a higher than normal oil consumption. It is important, therefore, to check the oil level more frequently. NB Wipe the dipstick, then fully replace it by screwing it in, now withdraw it to gain an accurate reading.

Do not mix oils of different brands and features.

Do not over-fill with oil. Over-filling may cause smoking or contamination of the spark plug and/or air filter.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

AIR FILTER – these engines use a paper air filter. This cannot be cleaned if it becomes contaminated with oil or petrol, and must be replaced.

SPARK PLUG – the following sparkplugs are the correct specification:

Champion: LM19 or QJ19LM

The spark plug gap should be 0.76mm or 0.03" (³⁰/₁₀₀₀)

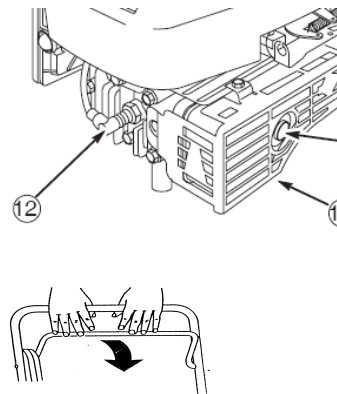


3 Routine Engine Maintenance

Regular and careful maintenance is essential to preserve the original performance and safety level of the engine. Always store the mower in a dry place.

TESTING FOR A SPARK (this job requires 2 people)

1. Stand the machine on a firm surface and set the height adjusters to the lowest setting for added safety.
2. Remove the H.T. lead – a push/pull fit.
3. Unscrew the spark plug (12 in the diagram) with a genuine spark plug spanner.
4. Fit the plug back into the end of the HT Cap and rest it against the engine block (hold only the black insulation lead).
5. The second person can now hold in the Operator Presence Control (OPC) and pull the engine cord. You should see a spark jump across the end of the plug.



Spark Plug:
Champion: LM19 or QJ19LM

The spark plug gap for this Briggs & Stratton engine is 0.76mm or 0.03" (³⁰/₁₀₀₀).

DRAINING FUEL:

We advise that the engine should be drained of fuel before storage for more than 30 days. One should only buy fuel in quantities that can be used up within a few weeks.

How to drain the fuel is explained in sub-section B of Section 4 Starting the Engine.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

Engine Model: Briggs & Stratton Quantum



CHANGING ENGINE OIL

Check the engine oil before each use.

These small four stroke engines hold up to 0.6 litres of oil (1.2 Pints). Any oil shortages can cause premature wear or serious damage to the engine. So too will using the incorrect grade of oil. NB Wipe the dipstick, then fully replace it by screwing it in, now withdraw it to gain an accurate reading.

Mountfield MX855 four stroke oil is readily available through either the B&Q chain of retailers or through our own comprehensive dealer network.

If you are unable to obtain the correct oil, use either an SAE30 or a 10W-30 grade of oil. These oils are generally only found in the larger DIY stores in the gardening department or at a garden centre or lawnmower specialist

The oil should be changed on all new engines after approximately 5 hours of operation. It should then be changed every 50 hours of operation, or once a season.

Before changing the oil, run the engine for a few minutes to warm the engine oil. This allows it to run more freely and to carry out any sediment with it.

Option 1....this is the more convenient method for these engines

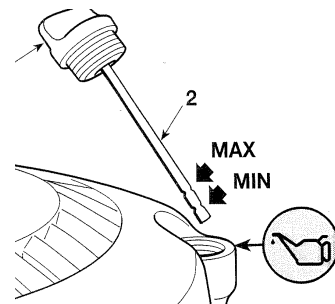
To drain oil from the oil fill tube, run the engine to warm the oil. Remove the H.T. lead and grass catcher assembly. Undo the oil fill dip stick and make sure a suitable tray is in place to catch the oil. Tilt the machine **backwards onto the rear left wheel (the wheel closest to the oil fill)** so that three wheels will be clear of the ground. As the angle increases the oil will pour out of the fill and into the tray. Once completed, stand the machine on level ground and refill in accordance with the operating instructions.

Option 2....these engines have a square recessed drain bolt beneath the cutter deck which a $\frac{3}{8}$ " square socket extension bar fits. Drain bolts are beside the main crankshaft (blade shaft). On power drive machines a black plastic guard protects the belt. Inside is a small recess with the oil drain bolt at the top. Turn the drain bolt anti-clockwise to release.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

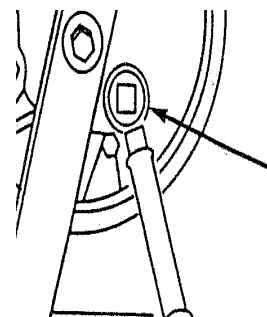
Engine Oil

- **Mountfield MX855**
- **SAE30 lawnmower oil**
- **10W-30 oil**



Oil capacity is 0.6 litre

Mountfield MX855 four stroke oil is readily available through either the B&Q chain or through our own dealer network.



**Engine Model: Briggs & Stratton
Quantum**



ENGINE MANUFACTURER'S RECOMMENDATIONS:

As a guide, the information below has been copied from the engine manufacturer's user manual:

Maintenance Schedule

Follow the hourly or calendar intervals, whichever occur first. More frequent service is required when operating in adverse conditions noted below.

First 5 Hours

- Change oil

Every 5 hours or daily

- Check oil level
- Clean debris**
- Clean around muffler

Every 25 hours or every season

- Change oil if operating under heavy load or high ambient temperature
- Service air cleaner*

Every 50 hours or every season

- Change oil
- Inspect spark arrester, if equipped.

Every 100 – 300 hours

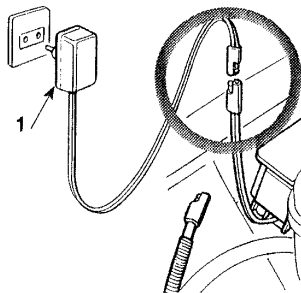
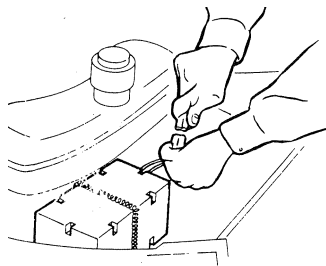
- Clean combustion chamber***
- * *Clean more often under dusty conditions, or when airborne debris is present or after prolonged operation cutting tall, dry grass.*
- ** *On string trimmer applications: clean debris at each refueling, sooner if needed; have qualified technician clean air cooling system every 30 hours, every season, sooner if needed, especially in high debris conditions.*
- *** *See an Authorized Briggs & Stratton Service Dealer.*

NB: Please refer to the engine manufacturer's manual for specific information.



Battery Care (for key-start models only):

These guidelines for the care of lawnmower batteries should be observed. If not, a shortened working life of the battery may result. These are duplicated in the Owners Instruction pack supplied with the lawnmower.



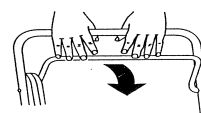
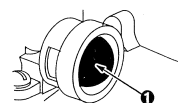
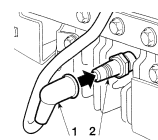
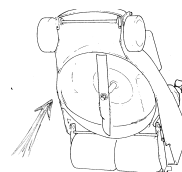
1. Always read the instructions carefully in the owner's manual which is supplied with the engine.
2. Before attempting to start a new engine on the key, charge the battery for 24 hours continuously (use only the battery charger supplied with the machine) and then leave to rest for 12 hours.
3. **Beware!** Do **not** recharge the battery using an incorrect charger (i.e. car battery charger). Serious damage may occur. Always check the charger plug is connected to the battery socket. On some machines the battery is hidden. It is advisable to remove the battery altogether and charge it away from the lawnmower.
4. Frequent stopping and restarting of the engine may result in a low battery charge. In this instance it is recommended that the battery be charged over night once a month during the cutting season, more frequently if heavily used.
5. Never store a battery which is discharged. This may result in permanent damage.
6. Disconnect the battery from the circuit if the machine is to be unused for more than 15 days.
7. At the end of the season and before storing for the winter, charge the battery for 24 hours and store away from the machine in a cool dry place.
8. Before using the machine the following spring, recharge the battery for 24 hours continuously and then leave to rest for 12 hours.
9. The battery is sealed and does not need any maintenance other than that suggested in the above points.



4 Starting the Engine

The engine oil should be checked before each use. Check there is sufficient petrol in the fuel tank, and that it is clean and fresh. Old, stale fuel may cause poor starting. Drain stale fuel from the tank and replace with fresh petrol.

1. Ensure the machine is situated on a firm level surface (path, patio or short grass). **Before checking the underside, make sure to remove the HT cap (spark plug cap).** Check the underside of the machine is clear from old lawn debris. If you have to tilt the mower, do this backwards only. First remove the grass catcher, then lift the front wheels until the handles reach the ground at the rear.
2. Check the H.T. lead (1 in the diagram) is correctly fitted to the spark plug.
3. Push the primer bulb (1) at least three times. When starting from cold (or for new engines) it may be necessary to prime the engine eight to ten times continuously to bleed the fuel system of any air pockets.



Check the Operator Presence Control (OPC) lever is held against the handle when starting and using the mower.

QUICK TROUBLESHOOTING GUIDE:

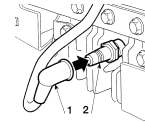
Problem:	Likely Cause:	Solution:
Engine is difficult to start	• Spark plug disconnected • Dirty spark plug or incorrect gap • No fuel • Stale fuel or build-ups in fuel tank	• Check the spark plug cap is firmly fitted on the spark plug (see A) • Check the spark plug (see A) • Check and top up (see B) • Drain old fuel, re-fill with fresh fuel (see B)
No response from key start	• Loose connection or flat battery (electric start models only)	• Check (see C)

Engine Model: Briggs & Stratton Quantum



A: Spark Plug:

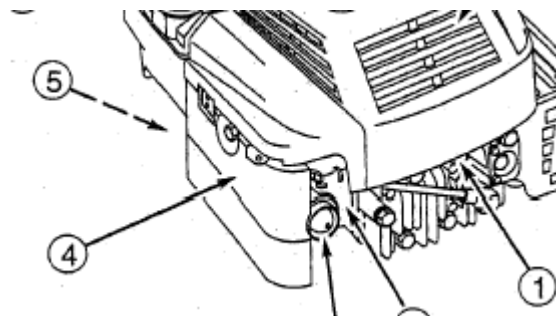
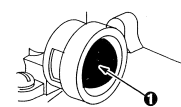
Check the H.T. lead (1 in the diagram) is correctly fitted to the spark plug.



To check the state of the plug, unscrew the spark plug with a genuine spark plug spanner. Oil can be cleaned from it (the result of the machine having been overfilled with oil or tipped incorrectly) with a clean rag.

A wire brush or emery paper can be used to clean any carbon deposit from the plug.

Whilst the plug is removed, prime the engine 10 times and pull the recoil rope 6 times. This will rinse and eject any residue of oil from within the cylinder head.



Now it would be prudent to check the air filter:

The filter is located on the left hand side (viewed from the front). The cover (4) has a screw to release it at the top. Remove the cover and then the inner paper filter. If contaminated with oil or fuel, it will need to be replaced. Clean the cover and housing from any excess oil. Replace the filter.

If you wish to test for a spark (2 people required):

1. Stand the machine on a firm surface and set the height adjusters to the lowest setting for added safety.
2. Remove the H.T. lead – a push fit.
3. Unscrew the spark plug with a genuine spark plug spanner.
4. Fit the plug back into the end of the H.T. lead and rest it against the engine block (hold only the black insulation lead).
5. The second person can now hold in the Operators Presence Control and pull the engine cord. You should see a spark jump across the end of the plug.

The spark plug gap should be 0.76mm or 0.03" ($\frac{30}{1000}$).

Replace the plug and ensure the H.T. lead is correctly fitted to the spark plug.

NOTE: If there is no spark, change the plug. If there is still no spark refer to a service dealer because the coil may be faulty.

**Engine Model: Briggs & Stratton
Quantum**



B: Fuel:

Ensure there is fresh unleaded petrol in the fuel tank. The fuel is fed by gravity.

Push the primer bulb at least three times. You should hear petrol squirting into the engine and feel some resistance to your finger as you press the primer button.

When starting from cold (or for new engines) it may be necessary to prime the engine eight to ten times continuously to bleed the fuel system of any air pockets.

Stale fuel or build-ups in the fuel tank are most common when the mower has been stored for a period of time (e.g. over the winter period)

We advise that the engine should be drained of fuel before storage for more than 30 days. One should only buy fuel in quantities that can be used up within a few weeks.

NOTE: Fuel that has become contaminated will prevent these engines from starting. Contamination can include water from either condensation or from water that has somehow got into the storage tanks at the garage. A service dealer may be required to clear this.

NB: Where a fuel supply blockage has occurred, a service dealer should be consulted to free the blockage.

To empty fuel from the engine place the mower on a solid surface/patch of gravel or similar (fuel spillage may kill the lawn or stain a patio).

On the bottom of the carburettor float bowl is a single screw. Use an 13mm spanner (ring spanner is best) to loosen it (do not take it out completely so that the seal is not damaged). Once the screw is loose, fuel will begin to seep out. Allow the full contents of the tank to drain through onto the machine chassis and then the floor, or have a small collection tub ready to place underneath to collect the fuel.

Allow all the fuel to drain. Before refitting the screw, take about half a cup of clean fresh fuel and pour this into the fuel tank. Rock the machine to rinse around the tank, and again allow this to drain out.

Re-fit the screw and fill the tank with new fresh unleaded fuel. Before starting, wipe away any spillages from the deck.

Remove the spark plug from the engine, clean it. With the plug removed, prime the engine 10 times, pull the recoil rope 6 times to eject any residue of fuel from within the cylinder head.

Refit the spark plug, and then only prime the engine once before attempting to start the engine.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

**Engine Model: Briggs & Stratton
Quantum**



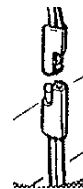
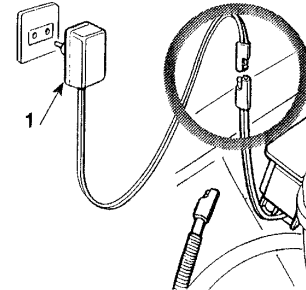
C: No response from key start (electric start models only):

Before attempting to start a new engine on the key, charge the battery for 24 hours continuously (use only the battery charger supplied with the machine) and then leave to rest for 12 hours.

Frequent stopping and restarting of the engine may result in a low battery charge. In this instance it is recommended that the battery be charged over night once a month during the cutting season, more frequently if heavily used.

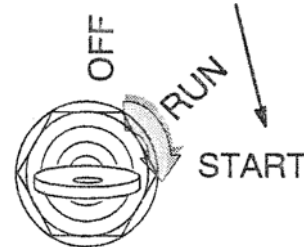
The battery charger should feel slightly warm if working correctly when attached to both mains and battery.

Check the cables leading from the battery are connected to the cables coming down the handle from the key start. Check also the cables are attached firmly to the terminals on the battery.



Check the cables leading from the back of the key start (beneath the handle) are securely attached to the terminals on the starter key unit.

If there is still no response from the starter unit (remember the OPC must be held in when starting the engine), contact your local service dealer.



**Engine Model: Briggs & Stratton
Quantum**



Battery Care Guidelines – these should be observed. If not, a shortened working life of the battery may result.

1. Always read the instructions carefully in the owner's manual which is supplied with the engine.
2. Before attempting to start a new engine on the key, charge the battery for 24 hours continuously (use only the battery charger supplied with the machine) and then leave to rest for 12 hours.
3. **Beware!** Do **not** recharge the battery using an incorrect charger (i.e. car battery charger). Serious damage may occur. Always check the charger plug is connected to the battery socket. On some machines the battery is hidden.
4. Frequent stopping and restarting of the engine may result in a low battery charge. In this instance it is recommended that the battery be charged over night once a month during the cutting season, more frequently if heavily used.
5. Never store a battery which is discharged. This may result in permanent damage.
6. Disconnect the battery from the circuit if the machine is to be unused for more than 15 days.
7. At the end of the season and before storing for the winter, charge the battery for 24 hours and store away from the machine in a cool dry place.
8. Before using the machine the following spring, recharge the battery for 24 hours and then leave to rest for 12 hours.
9. The battery is sealed and does not need any maintenance other than that suggested in the above points.



Your local ServiceLink centre can be found at
www.servicelink.org.uk



5 Engine Starts and Smokes Heavily

QUICK TROUBLESHOOTING GUIDE:

Problem:

White, blue or grey smoke from exhaust

Likely Cause:

- Over-filled with oil
- Mower has been tipped incorrectly

Solution:

- Reduce oil (see A)
- Remove oil from cylinder (see B)

Oil coming from exhaust

- Over-filled with oil
- Mower has been tipped incorrectly

- Reduce oil (see A)
- Remove oil from cylinder (see B)

The correct way to tip your mower is BACKWARDS.

A: Do not overfill the engine with oil.

This 4-stroke engine holds up to 0.6 litres of oil (1.2 Pints). NB Wipe the dipstick, then fully replace it by screwing it in, now withdraw it to gain an accurate reading.

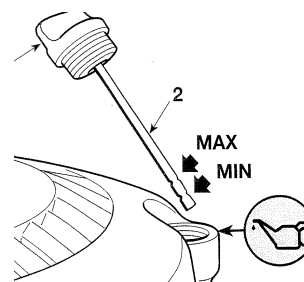
Easiest way to drain excess oil (from oil-fill tube):

Run the engine a few minutes to warm the oil. Remove the H.T. lead and grass catcher assembly. Undo the oil fill dip stick and make sure a suitable tray is in place to catch the oil. Tilt the machine **backwards onto the rear left wheel closest to the oil fill** (three wheels will be clear of the ground). As the angle increases the oil will pour from the fill and into the tray. Drain excess oil, and make sure the level of oil in the tank does not show above the MAX mark on the dipstick.

Replace the dipstick

Engine Oil:

- Mountfield MX855
- SAE30 lawnmower oil
- 10W-30 oil



Oil capacity is 0.6 litre

Mountfield MX855 four stroke oil is readily available through either the B&Q chain or through our own dealer network.

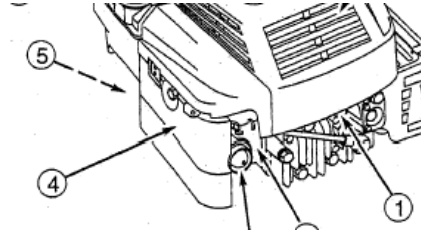
Now follow the instructions in B below.

Engine Model: Briggs & Stratton Quantum



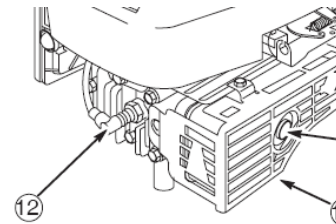
- B:** This is a general indication that the mower has been over-filled with oil, or tipped incorrectly (perhaps inadvertently). It can be resolved without the intervention of a service dealer.

The filter is located on the left hand side (**viewed from the front**). The cover (4) has a screw to release it at the top. Remove the cover and then the inner paper filter. If contaminated with oil or fuel, it will need to be replaced. Clean the cover and housing from any excess oil. Replace the filter.

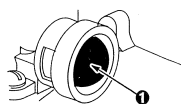


Remove and clean the spark plug completely. **ONLY USE A GENUINE SPARKPLUG SPANNER.**

Oil can be cleaned from it (the result of the machine having been overfilled with oil or tipped incorrectly) with a clean rag.



A wire brush or emery paper can be used to clean any carbon deposit from the plug.



Whilst the plug is removed, prime the engine 10 times and pull the recoil rope 6 times. This will rinse and eject any residue of oil from within the cylinder head.

Replace the plug and start the engine in the normal way. The engine will smoke quite badly at first, but allow the engine to continue running for at least ten minutes. The smoke will begin to dissipate. Let the mower run until the smoke has gone.

NB During subsequent uses (for maybe a further 8-10 hours) the mower may smoke a little. Droplets of oil may come from the exhaust onto the deck as the oil is cleared from the cylinder. Simply wipe these away with a rag.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment



6 Engine Cutting Out or Running Unevenly

QUICK TROUBLESHOOTING GUIDE:

Problem:

Engine revs are very low and maybe uneven

Likely Cause:

- Paper air filter may be contaminated with oil

Solution:

- Replace the air filter (see A)

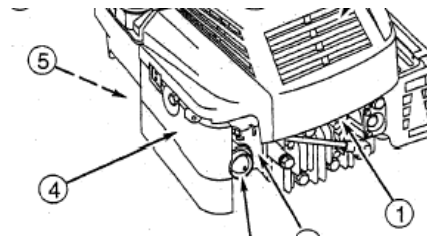
Engine is hunting (revs go up and down)

- Dirt or build-ups (or stale fuel) in fuel tank
- Air drawn into the engine from a faulty inlet manifold

- Drain old fuel, re-fill with fresh fuel (see B)
- Refer to a service dealer.

A: Replacing the Paper Air Filter:

The filter is located on the left hand side (**viewed from the front**). The cover (4) has a screw to release it at the top. Remove the cover and then the inner paper filter. If contaminated with oil or fuel, it will need to be replaced. Clean the cover and housing from any excess oil. Re-fit a new air filter.



B: Replacing the Fuel:

To empty fuel from the engine, have the mower on a solid surface, patch of gravel or similar (fuel spillage may kill the lawn/stain a patio)

On the bottom of the carburettor float bowl is a single screw. Use an 13mm spanner (a ring spanner is best) to loosen it (do not take it out completely so that the seal is not damaged). Once the screw is loose, fuel will begin to seep out. Allow the full contents of the tank to drain through onto the machine chassis and then the floor, or have a small collection tub ready to place underneath to collect the fuel.

Fill the tank **with new fresh unleaded fuel**.

Remove the spark plug from the engine and clean it. Whilst the plug is removed, prime the engine 10 times and pull the recoil rope 6 times. This will eject any residue of fuel from within the cylinder head. Now (if possible) heat the contact end of the spark plug (*the end that is screwed into the cylinder head*) in a gas flame. Refit the spark plug, and then only prime the engine once before attempting to start the engine.

**Engine Model: Briggs & Stratton
Quantum**



We advise the engine should be drained of fuel before storage for more than 30 days. One should only buy fuel in quantities that can be used within a few weeks, and petrol should be bought from the garage and transported/stored in approved plastic petrol containers.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

NB: Where a fuel supply blockage has occurred, a service dealer should be consulted to free the blockage.



**Your local ServiceLink centre can be found at
www.servicelink.org.uk**



7 Pull Cord Not Pulling or Snatching Back

QUICK TROUBLESHOOTING GUIDE:

Problem:

Pull cord will not pull

Likely Cause:

- OPC not engaged
- Grass caught between the blade and the deck
- "Hydraulic lock"

Solution:

- Hold OPC in (see A)
- Remove grass from the blade (see B)
- Remove oil from cylinder (see C)

Cord snatches back

- Blade rotation is impeded
- Blade is unbalanced or damaged

- Free blade (See D)
- (See E) and refer to dealer

- A:** The OPC lever must be held fully in to the main handle before the pull cord can be pulled and the engine can run. If the OPC lever is fully engaged and the cord will only pull out 4" or so, see **C** below.
- B:** Remove the grassbox. Now remove the HT lead (spark plug cap) for safety reasons, then lift the front wheels until the handles reach the ground at the rear. Free any grass caught between the blade and the deck. Stand the mower back on the ground on all four wheels, replace the cap on the sparkplug and start in the normal way.
- C:** Hydraulic Lock occurs if the mower has been tilted forwards and oil settles between the piston and cylinder head, sticking the piston to the cylinder roof.

Remove and clean the spark plug completely. **ONLY USE A GENUINE SPARKPLUG SPANNER. *Do not replace the plug yet.***

If the cord will not pull free, tilt the mower BACKWARDS, reach underneath and turn the blade (in either direction) to free it. Clear any grass blockage.

With the sparkplug removed, prime the engine 6 times with the primer button, hold in the OPC lever and pull the engine over with the pull cord 6 times to eject any oil from the spark plug hole.

Replace the plug and start the engine in the normal way. The engine might smoke quite badly at first, but allow the engine to continue running for at least ten minutes. The smoke will begin to dissipate. Let the mower run until the smoke has gone.

NB During subsequent uses (for maybe a further 8-10 hours) the mower may smoke a little. Droplets of oil may come from the exhaust onto the deck as the oil is cleared from the cylinder. Simply wipe these away with a cloth.

For best practice, only to tip your mower BACKWARDS.

**Engine Model: Briggs & Stratton
Quantum**

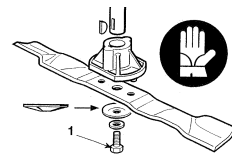


D: The engine pull cord may snatch back when pulled if the machine is not on a flat and firm surface, or the blade and/or its mounting boss are damaged or fitted insecurely.

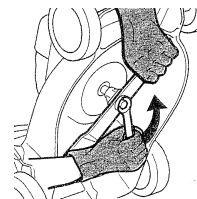
1. Ensure the machine is situated on a firm level surface (path, patio or short grass). Check the underside of the machine is clear from old lawn debris. If you have to tilt the mower, do this backwards only. First remove the grass catcher, remove the HT lead (spark plug cap), then lift the front wheels until the handles reach the ground at the rear.
2. If attempting to start the mower on the lawn, the grass beneath the cutter can slow its rotation, and even prevent the free rotation of the cutter, causing a "snatch back". If the engine is cold, select a firm surface for starting the mower. If the engine is warm, always pull the mower back onto a pre-mown area where the grass is already short to prevent unnecessary jamming.

E: To check the blade, pull the cap off the sparkplug (for safety) and remove the grass catcher from the rear of the mower. Tilt the mower **BACKWARDS** so that the handle touches the ground.

1. The cutter bar is retained by a central bolt. This should be tight (the thread is the normal anti-clockwise turn to tighten).



2. To either side of the central bolt there are two silver lugs protruding through the cutter bar. If these are missing, it indicates that the machine has come into contact with more than normal grass and has damaged the cutter mount (boss). This will have to be replaced. This type of repair would not normally be covered by warranty.



It is wise to mark the blade before removing it so that the blade can be replaced the correct way up.



8 Cutting and Collecting Grass, Vibration

QUICK TROUBLESHOOTING GUIDE:

Problem:	Likely Cause:	Solution:
Mower will not cut grass properly	• Technique is incorrect • Grass is too long or wet • Problem with the blade or blade mounting	• See A • See A • See B
Mower vibrates excessively	• Problem with the blade or blade mounting • The engine mounting is loose	• See B • See B
Mower will not collect grass properly	• Technique is incorrect • Grass is too long or wet • Build-up of grass clippings underneath or lack of air flow	• See A • See A • See C

A MOWER WILL NOT CUT GRASS PROPERLY

When cutting grass make sure you are using the machine on full throttle (if one is fitted). If collecting the grass ensure the mulching plug (if available) has been removed.

Do not cut wet grass.

Especially in the Spring when the grass may be long and lush, do not attempt to cut too much grass at any one time.

If the lawn is several inches in length then raise the height of cut and gradually reduce the lawn in stages to prevent blocking. It may also help to remove the grass catcher, cut the grass first on the highest setting, and work down to lower settings and collecting the grass.

If the grass is damp you can attempt to cut the lawn by raising the height of cut to allow a greater airflow, and reducing the lawn to the desired level in stages.

Check the height adjuster levers settings are the same on each wheel and that they are at a level suitable for the grass conditions.

Mulching Mowers: (PLEASE NOTE, ALSO SEE www.mulching.co.uk for mulching tips and how to mow better with mulching mowers)

The same advice above applies to mulching mowers. These are mowers that are not designed to collect grass – they recycle the grass clippings, and return natural nutrients to your lawn. NOTE: Combination mowers use a mulching plug so they can then be used also as a mulching mower.

Engine Model: Briggs & Stratton Quantum



Follow these simple steps for the best mulching results, and remember that to obtain the perfect cutting height you need to work down from the maximum height setting in steps until you reach your ideal height.

1. Remember the one third rule – never remove more than one third of the length of the blade of grass whenever you mow. This is good advice no matter what type of mower you use!
2. Cut a little:
 - Set the mowing height to about 1½ to 2 inches for most lawns, this will develop deeper root growth and crowd out weeds
 - The one third rule also implies that you should mow your grass before it is 3" high because a mulching cutter deck will have no problem chopping one inch of clippings into tiny particles and concealing them in the remaining standing grass
 - Leaving grass to reach 5-6" high would make it impossible for any mower to hide 3-4" of chopped clippings in just 2" of lawn.
3. Cut often:
 - Remove only one third of the grass length at each mowing. Try to mow weekly, especially in spring – cutting too much at once stresses the grass. Every two weeks will probably be often enough in the summer

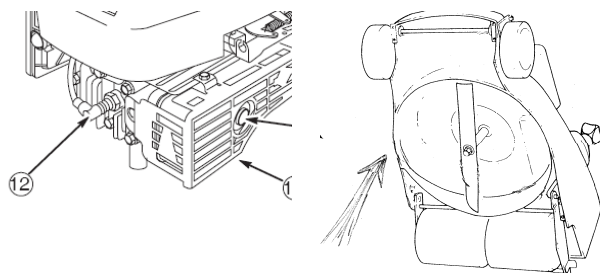
Leave grass about half an inch longer than you would normally if you were discharging or collecting the clippings.

Keep your mower blades sharp. Mulching tends to dull blades faster than other methods of mowing. Sharpen them more often, if necessary.

Water the lawn after mulching, not before. Dry clippings disperse more easily than moist ones. Watering after the lawn has been mulched helps clippings settle better and speeds up decomposition.

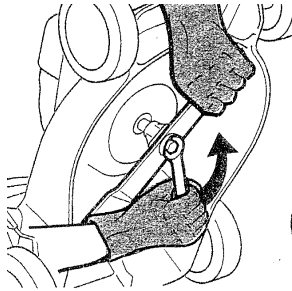
B PROBLEMS WITH THE BLADE OR BLADE MOUNTING

Before checking the blade, REMOVE the H.T. lead (12 in the diagram). and ONLY TIP THE MOWER BACKWARDS.

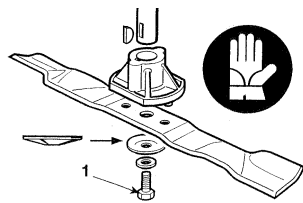




Excessive vibration can indicate damage to the blade, or blade mounting, or that the engine is loose



Loosening the blade
(it is a normal thread, so turn anti-clockwise to remove the blade)



Check the blade bolt is tight.

WARNING: Mark the blade before attempting to remove it. This will enable you to replace it the correct way up.

Check the blade mount. The mount has two lugs one either side of the blade securing bolt. If these have sheered then the blade can move.

If the blade mount has failed, a replacement can be purchased through your local Mountfield dealer.

The Blade mount is only likely to fail because the blade has come into contact with an obstruction of some form. The blade mount is designed to fail in order to offer some degree of protection to the engine crankshaft.

Check the condition of the cutter blade - if badly worn or damaged, replace with a new one. If a new cutter blade has been fitted, check that it has been installed the correct way up (the wing tips at either end should bend upward into the mower chassis and not downward towards the ground).

Check that all 3 bolts securing the engine are in place and tight.



C BUILD-UP OF GRASS CLIPPINGS UNDERNEATH or LACK OF AIRFLOW

When cutting grass make sure you are using the machine on full throttle (if one is fitted).

Raising the height of cut increases airflow and assists grass collection. This is especially so if the grass is damp.

Reducing the height of cut in stages to achieve the desired level is a sound strategy.

1. Ensure there is no build up of grass underneath the casing. **Before checking the underside, make sure to remove the HT Cap (sparkplug cap).** Only access the under side of the machine by removing the grass catcher then lifting the machine from the front until the handles touch the ground at the rear).
2. Check the grass catcher allows air to pass through it. If heavily soiled, wash it in warm soapy water to clear old deposits of grass juices and debris. A good airflow is essential for efficient grass collection.
3. If grass is very long, remove the grass catcher, and work with the deflector plate (stone guard) in position. Clippings can be collected after a few hours drying by simply going over the lawn again with the grass catcher fitted, and the wheels set slightly higher.
4. Should the machine become blocked with grass when using it, **stop the mower and remove the H.T. lead** (spark plug cap). Remove the grass box, insert your hand through the rear aperture and clean away any build up of grass clippings. **DO NOT TIP THE MOWER FORWARDS, OR SIDEWAYS, OR UPSIDE DOWN.**
5. Walk around to the front of the mower and raise the front wheels in the air until the handles reach the ground at the rear. Clean away any grass clippings which have accumulated on the underside.
6. Once cleaned, lower the machine, re-fit the HT lead (spark plug cap) and restart engine.



9 Loss of Drive on Self-Propelled Mowers

QUICK TROUBLESHOOTING GUIDE:

Problem:	Likely Cause:	Solution:
Clutch cable very slack and mower does not drive	• Cable is detached or broken • Cable tension is incorrect	• See A • See A
Back wheels turn when raised from ground but mower does not drive	• Clutch cable has stretched • Cable tension is incorrect	• See A • See A
Clutch cable may be slack and mower does not drive	• Belt is broken or has come off the drive pulleys • Cable may be broken or detached	• See B • See a service dealer

PLEASE NOTE: This is a generic guide and gives basic instructions for a wide range of mowers and slight variations may arise. If in doubt, please contact the Helpline service on 0845 600 2912 (Monday to Saturday 9am – 5pm, and Sunday 10am – 4pm).

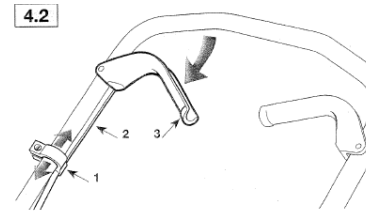
A ADJUSTING THE TENSION ON THE CLUTCH CABLE

**Engine Model: Briggs & Stratton
Quantum**



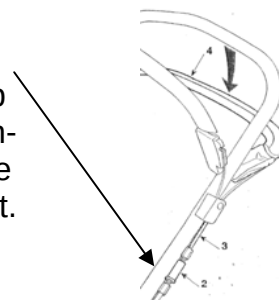
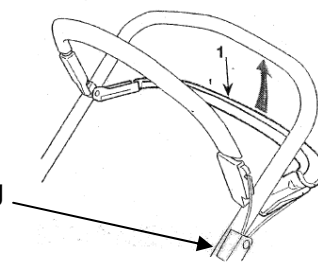
**FOR MOWERS WITH THE CLUTCH ON THE
RIGHT HAND SIDE OF THE HANDLE:**

- a) Check the clutch cable runs up the right hand side of the main handle (right hand side viewed from behind the mower) and through the tension bracket (shown as 1 in the diagram above). If the cable is not in this bracket, insert it and follow the instructions in b) below to adjust the tension.
- b) Check the tensioning bracket (shown as 1 in the diagram above) because this can have moved up the handle or the cable may have stretched a little with use. Slacken the screw in the bracket, slide the bracket **DOWN** the handle to take up spare slack in the cable, and tighten the screw. **NOTE:** The cable should have about $\frac{1}{2}$ " of play on it.
- c) If the above steps do not return the tension to the cable and restore the drive, the cause of the problem may be the belt has come off the drive pulleys (see Section B) or the clutch cable has broken or become detached (see a service dealer).



**FOR MOWERS WITH THE CLUTCH BAR
RUNNING ACROSS THE HANDLE:**

- a) Check the clutch cable runs up the left hand side of the main handle through the anchoring bracket on the handle. If the cable is not in this bracket, insert it and secure the bracket to the handle, then follow the instructions in b) below to adjust the tension.
- b) The cable may have stretched a little with use. Slacken the bottom nut on the adjusting barrel and then tighten the top nut on the adjusting barrel to take up un-required slack in the cable. **NOTE:** The cable should have about $\frac{1}{2}$ " of play on it.
- c) If the above steps do not return the





tension to the cable and restore the drive, the cause of the problem may be the belt has come off the drive pulleys (see Section B) or the clutch cable has broken or become detached (see a service dealer).



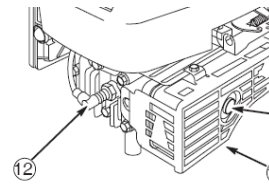
**Find your local
ServiceLink centre at
www.servicelink.org.uk**

B REPLACING THE BELT

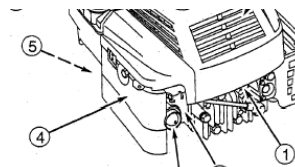
To replace the belt on these machines, it will involve tipping the machine to gain access to the belt. You will need to observe certain general and safety precautions prior to undertaking this task.

Chose an appropriate firm surface to work on such as a workbench - not standing on a high quality patio or lawn (these could be stained or damaged by machine fluids).

WARNING: Make sure you have disconnected the HT lead (12) from the spark plug (it is a simple push fit) before you undertake ANY of the work below.



The air filter cover and filter paper element will need also to be removed. This is located on the left hand side (viewed from the front). The cover (4) has a screw to release it at the top. Remove the cover and then the inner paper filter.



Now follow the sequence of steps below:

1. Remove the grassbox
2. Check you have already removed the spark plug cap (for safety reasons) and the air filter (to avoid potential contamination)
3. Without tipping the mower forwards or sideways, lift the mower up onto a workbench on all 4 wheels, and position the back wheels close to the edge of the workbench

**Engine Model: Briggs & Stratton
Quantum**



4. Raise the stone guard flap, tip the mower BACKWARDS with the handle hanging over the edge of the bench – it will stand upright like this
5. Mark the blade so that after removing it you can replace it the correct way
6. Unscrew the blade (normal thread so turn the spanner anti-clockwise to unfasten)
7. Remove the belt guard plate (the protective plate through which the blade shaft protrudes) - it is between the blade and the deck of the mower (it may be held on by a single screw, 2 screws and a nut, or 4 screws)
8. If the belt is broken, a replacement must be purchased from the service dealer. Position the belt around the pulley on the blade shaft
9. On the back axle there is a black/grey box (the transmission unit) and on the uppermost face of this is a pulley – wind the belt onto this pulley as if winding a chain onto a bicycle wheel (it may appear that this pulley is at an angle, but the tension of the belt will straighten this)
10. Replace the belt guard plate and re-attach the blade the correct way up
11. Carefully lift the mower down onto the ground without tipping it forwards or sideways and replace the spark plug cap and the air filter.



**Find your local
ServiceLink centre at
www.servicelink.org.uk**

NOTE: If the belt repeatedly comes adrift, this is normally a sign that either grass is finding its way into the belt compartment, or the belt is worn or damaged and should be replaced. Whenever ordering spare parts ALWAYS quote the model number of your machine to the dealer.

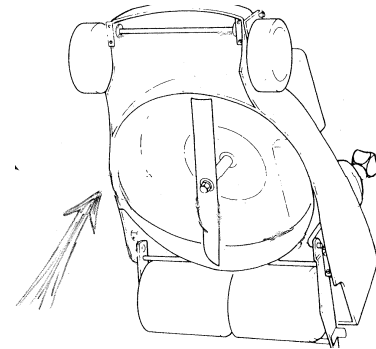


10 Transportation and Handling

The correct way to gain access underneath the mower:

Before checking the underside, make sure to remove the HT Cap (sparkplug cap).

ALWAYS lift from the front of the mower so that the front wheels are raised, and the handles touch the ground at the rear. Do not tip the mower sideways or forward (like one might lift a wheelbarrow) as this can flood the air filter, exhaust and even the cylinder with engine fluids.



It may be helpful to place a weight on the handle to maintain the mower in this position when working beneath the deck.

Whenever the machine is to be handled, raised onto a workbench or transported, remove the HT Cap (sparkplug cap):

1. Wearing strong gloves and taking account of the weight and its distribution, grasp the machine at the points that offer a safe grip.
2. Use an appropriate number of people for the weight of the machine and the characteristics of the vehicle or the place where it has to be placed or collected.
3. When lifting the machine to and from a vehicle or onto a workbench, take care to keep it level. **DO NOT TIP IT.**
4. The handles may be folded to ease storage and transportation. ***It is important to take care not to trap the operating cables when collapsing the handles.***



11 Maintenance and Storage

Regular and careful maintenance is essential to preserve original performance and safety levels of the engine. Always store the mower in a dry place. Please also refer to the Engine Routine Maintenance information for additional help.

Key maintenance and storage information (all engines):

1. **Keep all nuts, bolts and screws tight** to ensure the equipment is in safe working condition. **Regular routine maintenance** is essential for safety and performance.
2. **Never store the mower** with fuel in the tank inside a building where vapour may reach a flame or a spark or a source of extreme heat.
3. **Allow the engine to cool** before storing in an enclosed space.
4. **To reduce the fire hazard**, keep the engine, exhaust silencer, battery compartment (if fitted) and fuel storage area free of grass, leaves, or excessive grease. Do not leave containers of grass cuttings in rooms.
5. **Check the stone guard and grass collector** frequently for wear and deterioration.
6. **If the fuel tank has to be drained**, this should be done outside and when the engine is cool.
7. **Wear strong work gloves** while removing or assembling the blade.
8. **Keep the blade balanced during sharpening.** All operations on the blade (dismantling, sharpening, balancing, remounting and/or replacing) require a certain familiarity and (in some cases) special tools. For safety reasons these tasks are best carried out by one of our authorised service dealers.
9. **For safety reasons, DO NOT use the equipment with worn or damaged parts.** Parts are to be replaced and not repaired. Use genuine spare parts only. Parts that are not of the same quality can damage the equipment and be dangerous for your safety.

If the lawnmower is to be stored for more than 30 days (e.g. over the winter period), drain the fuel from the tank or allow the engine to run until it runs out of fuel. This should always be done outdoors. To empty the fuel from the engine, see section 4 Starting the engine, sub-section B.

Alternatively, because this engine has a gravity feed, the engine may be allowed to run until it runs out of petrol.

**Engine Model: Briggs & Stratton
Quantum**



12 Guarantee, Spare Parts, Repairs

Congratulations on the purchase of your lawnmower. This product is guaranteed against faulty parts or manufacture for domestic use as shown below:

MOWER MODEL:

460 PD/ES, 460 R PD/ES

SP470ES

480 R, 480 R/ES

510 PD, 510 PD/ES

GUARANTEE PERIOD:

2 years from the date of purchase

SP550 Tricut

2 years from the date of purchase on the engine and mower, and 10 years anti-corrosion warranty on the deck

550R, 550 R/ES

M40 HP, M40 PD

M60 PD, M60 PD/ES,

2 years from the date of purchase on the engine and mower, and 20 years anti-corrosion warranty on the deck

If the machine is used commercially the guarantee period is 90 days from the date of purchase.

If your product fails due to a defect in materials or workmanship during the guarantee period it will be repaired or replaced at no charge provided all repairs are carried out by an authorised service dealer. Delivery and collection of the machine is your responsibility, and not covered by this guarantee. To locate your nearest service dealer go to www.servicelink.org.uk or telephone the Helpline on 0845 600 2912.

This guarantee is not transferable. Proof of purchase will be required in the event of a claim. Warranty is subject to the mower receiving annual service where there is a warranty for 2 or more years.

Normal wear-and-tear and the routine replacement of parts which are subject to normal wear-and-tear are not covered by this guarantee. Likewise, any defect which is the result of misuse, alteration, improper assembly or adjustment, neglect or accident is not covered by this guarantee.

This guarantee is in addition to, and does not detract from your original contractual rights under statute or common law.

Spare Parts, Repairs

We do not supply spare parts direct for general use. We do, however, have a comprehensive ServiceLink network that can happily supply replacement parts for your mower. Our ServiceLink centres can also undertake any remedial work requested (work that is not covered by the guarantee will be chargeable). Your local ServiceLink centre can be found at www.servicelink.org.uk

Our Helpline service, telephone 0845 600 2912 (Monday to Saturday 9am – 5pm, and Sunday 10am – 4pm).

Engine Model: Briggs & Stratton
Quantum



Repairs



Your local ServiceLink centre can
be found at www.servicelink.org.uk

Notes:

**Engine Model: Briggs & Stratton
Quantum**



Notes:

**Engine Model: Briggs & Stratton
Quantum**



Notes:

**Engine Model: Briggs & Stratton
Quantum**



Notes: